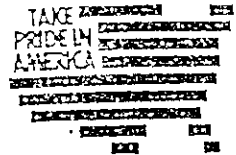




United States Department of the Interior

FISH AND WILDLIFE SERVICE
Post Office Box 1306
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In Reply Refer To:
Region 2/FWE/SE

FEB 28 1992

2-21-91-F-248

MEMORANDUM

To: Regional Director, Bureau of Reclamation, Lower Colorado Regional Office, Boulder City, Nevada

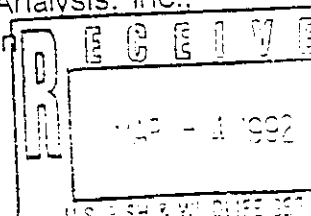
From: Regional Director

Subject: Formal Section 7 Consultation, Federal Loan Application Project, Fort McDowell Indian Reservation

This memorandum responds to your request of June 4, 1991, for formal consultation pursuant to Section 7 of the Endangered Species Act (Act) of 1973, as amended, on your proposed action of funding the Federal Loan Application Project, Fort McDowell Indian Reservation, Maricopa County, Arizona. The species of concern is the endangered bald eagle (Haliaeetus leucocephalus). The 90-day consultation period began on June 6, 1991, the date the Bureau of Reclamation's (BR) request was received in the Phoenix Ecological Services Field Office. A draft biological opinion has been reviewed by the Bureau of Reclamation (BR) and the Fort McDowell Indian Community (FMIC). Several meetings between the Fish and Wildlife Service (FWS), BR, FMIC, the Arizona Game and Fish Department (AGFD) and other interested parties have refined the reasonable and prudent alternative to a form agreed to as feasible and effective by all parties.

The FWS and BR mutually agreed to an extension of the formal consultation period to February 1, 1992. On January 15, 1992, BR provided final changes in the draft opinion requested by the FMIC. On January 23, 1992, the BR notified the FWS that all parties agreed the biological opinion could be finalized.

The following biological opinion is based on information provided in the Biological Assessment (Southwestern Field Biologists 1990), the Environmental Assessment submitted by the FMIC, Environmental Assessment and Biological Assessment prepared by Farrer Consulting Services, Inc., the Loan Application Report by Stanley-Franzoy-Cory Engineering Company, preliminary information from interim and draft reports on bald eagle ecology produced by BioSystems Analysis, Inc., data in our files, field examinations, and other sources of information.



BIOLOGICAL OPINION

It is my biological opinion that your funding the Federal Loan Application Project to the Fort McDowell Indian Reservation is likely to jeopardize the continued existence of the southwestern bald eagle population. A reasonable and prudent alternative is provided which alters the proposed project so it will no longer jeopardize the continued existence of this population.

BACKGROUND INFORMATION

Species Description

The bald eagle was first listed as an endangered species on March 11, 1967. No critical habitat has been designated for this species. The bald eagle is a large raptor once found throughout North America near seacoasts, lakes, and rivers. Bald eagles nest in trees near these bodies of water. Their primary food is fish, taken live or as carrion. Chemical contamination, chiefly by organochlorine pesticides, caused severe population declines and local extirpation throughout the species' range, through reproductive failure and direct toxicity.

Although not considered a separate subspecies, bald eagles in the southwestern United States are considered a distinct population for purposes of recovery efforts and Section 7 consultation under the Endangered Species Act (USFWS 1982, USFWS 1986). Southwestern bald eagles may represent a distinct population biologically, distinguishable by morphology, breeding chronology, and geographic isolation. Southern bald eagles are smaller on average than northern and California bald eagles. The breeding cycle begins in midwinter instead of spring, apparently a behavioral adaptation to avoid the extreme heat of spring and summer. Southwestern bald eagles also frequently nest on cliffs, a phenomenon rare or absent outside this geographic region. This population also supplements its piscine diet with mammals, birds, and reptiles, again taken either live or as carrion (Hunt, et al., 1991). Thirty bald eagle breeding sites have been identified as occupied in the southwestern population in recent years. Two are known from New Mexico (pers. comm., Sartor O. Williams III, New Mexico Department of Game and Fish), and 28 in Arizona (Hunt, et al., 1991). The distribution of Arizona bald eagles is primarily along the Salt, Verde, Gila, and Bill Williams Rivers, and several major tributaries.

A bald eagle breeding site has long been documented to occur adjacent to the proposed project to be funded by the Federal Loan Application Project, Fort McDowell Indian Reservation. Their nest trees are located along the Verde River adjacent to the proposed project areas. The Fort McDowell bald eagle breeding area has the longest documented history of all known bald eagle breeding sites in

the Southwest, with occupancy reported back to the 1940's and suspected before European settlement (Hunt, et al., 1991). This long history is due in part to its location along the relatively accessible lower Verde River (near Phoenix), where humans have been more likely to be aware of bald eagle nest sites. Many of the more recently discovered Arizona bald eagle breeding sites are in remote, rugged areas where they may have been active for many years without being discovered. Regardless, the location of the Fort McDowell bald eagle breeding site on the lower Verde River, which formerly supported extensive floodplain riparian communities, probably always made this a high quality southwestern bald eagle breeding site. The site ranks as the most dependably successful (young fledged) and productive (total number of young fledged) of Arizona's 28 nest sites (Hunt, et al., 1991), and in fact in the whole southwestern bald eagle population. Of the 232 bald eagles known to have fledged from Arizona nests between 1970 and 1991, Fort McDowell produced 33 fledglings or 14 percent (Hunt, et al., 1991 and pers. comm., Greg Beatty, Arizona Game and Fish Department). With an average of 19.5 breeding sites known and monitored through those years, Fort McDowell fledged 14 percent of all young while representing only an average of 5 percent of the State's total population. Southwestern bald eagle reproductive success is highest in Arizona, with poor nesting success in New Mexico (Brown et al., 1990 and pers. comm., Sartor O. Williams III, New Mexico Department of Game and Fish). In terms of occupancy, success, and productivity, the Fort McDowell site ranks as the most influential of any site, in its contribution to maintaining the southwestern bald eagle population.

Project Description

The Fort McDowell Federal Loan Application Project is intended to fund the development of a trickle-irrigation project supported by the 1990 Water Settlement Act. The project is in the northwest section of the Fort McDowell Indian Reservation. The project proposes to convert approximately 1,660 acres of native vegetation (approximately 1,468 acres of paloverde-mixed cacti association, approximately 192 acres of desert riparian scrub) adjacent to the Verde River floodplain into irrigated orchards and vineyards. Land to be brought under irrigation includes lower alluvial slopes of the McDowell Mountains, just above the present Verde River floodplain. The project would also include construction of main channel diversion improvements, two turnouts, two pumping plants and filter stations with block control stations. Fences, flood protection dikes, a main access road, and farm headquarters will also be constructed (Fort McDowell Indian Community 1991).

EFFECTS OF THE ACTION

Environmental Baseline

Bald eagles in the Southwest have been exposed to increasing hazards from a regionally increasing human population. These include extensive loss and modification of riparian breeding and foraging habitat through clearing, changes in groundwater levels, and changes in water quality. Hazards also include increasing human disturbance from urban, rural, and recreational encroachment into breeding habitat. This latter includes host of threats documented by Stahlmaster (1987), such as shooting; collision with vehicles, aircraft, transmission lines and structures; poisoning; and electrocution. The bald eagle population in the Southwest was probably never very large due to limited habitat and in pre-industrial times likely fluctuated in size in response to weather conditions (e.g., cyclic droughts and wet periods). Following the banning of domestic use of DDT in 1972, the Arizona bald eagle population has probably recovered despite increasing pressures of a regionally increasing human population and associated industrialization. However, while significant recovery has taken place, the bald eagle remains tenuously established in the Southwest. Various reports and records suggest that nesting bald eagles may have been more widely distributed in Arizona in the past. Approximately 20 site records are strongly suggestive of bald eagle nest sites which are not known to have been occupied in the last decade (Hunt, et al., 1991). These observations may suggest factors are at work which limit further recovery or population expansion. These pressures compound the stresses of an already harsh environment for breeding bald eagles. Especially near population centers, bald eagle breeding sites face continually increasing threats from malicious and accidental harassment, including shooting, off-road vehicles (ORV's), low aircraft overflights, loss of nesting and foraging habitat from riparian degradation, and lethal entanglement in fishing line, which is a documented threat (Hunt, et al., 1991).

Much of the southwestern bald eagle population is exposed to the pressures described above. Half of Arizona's 28 current breeding sites, including Fort McDowell, are located on rivers and near reservoirs that are easily and frequently accessed by the public, providing the potential for these threats. The Arizona Bald Eagle Nestwatch Program (ABENWP) continues to document disturbance at nest sites, and frequently intervenes to reduce harassment. This intervention has proven not only effective, but perhaps crucial in maintaining the southwestern population. Up to 50 percent of a given year's reproduction has been salvaged by ABENWP "rescue" operations. These include removing fishing line and tackle from nestlings and returning nestlings into nests after they fell or jumped out in response to disturbance or to escape extreme heat.

Formal Section 7 consultation was initiated in 1984 by the Bureau of Indian Affairs, on the Rehabilitation and Betterment Irrigation Project (RBIP) (USFWS 1985). The RBIP involved development of 3,560 acres of irrigated cropland near the Fort McDowell bald eagle nest trees and included clearing 891 acres of mesquite bosque adjacent to known nest trees. A jeopardy biological opinion was reached in that consultation, with five reasonable and prudent alternatives offered. These alternatives included maintaining buffer zones around the nest trees existing then, planting cottonwood trees within these buffer zones to maintain visual and acoustic barriers, establishing a nest watch program, and adjusting farming activities to prevent adverse impacts on nesting bald eagles. The effectiveness of these alternatives was monitored only through the annual ABENWP, which documented increasing levels of fuelwood cutting and general disturbance in the years following the RBIP (pers. comm. Greg Beatty, Arizona Game and Fish Department).

Evidence exists that suggests the combination of direct and cumulative effects of the proposed Federal Loan Application Project would have negative effects on the Fort McDowell bald eagle breeding site. Under the RBIP, a large area of mesquite bosque was bulldozed to within 165 feet of the active nest tree in 1985 for agricultural development. Crops were planted in 1986 and subsequent clearing took place to within 100 feet of that nest tree. Since that agricultural development, reproduction at the Fort McDowell site has fallen from 1.8 young per occupied year from 1968 to 1985, to 1.0 per occupied year from 1986 through 1991 (pers. comm. Dan Driscoll, BioSystems Analysis; also Gregory Beatty, Arizona Game and Fish Department). This represents a 45 percent reduction in productivity. The site has failed to produce any young in 2 of the 6 breeding years since 1986; the site failed only twice in the 16 years preceding implementation of that project (Hunt, et al., 1991). Factors that may have contributed to this decline include disturbance, harassment, pesticide contamination, and habitat degradation associated with the RBIP. In 1989, aerial spraying of pesticides took place within 165 feet of the occupied nest. The next breeding season, that same (banded) female laid a very rare "runt" egg, and failed to produce any young. Analysis of that infertile egg is still pending (Hunt, et al., 1991).

In addition to organized agricultural development, the riparian ecosystem along the Verde River through this bald eagle breeding site is increasingly subjected to degradation by "unofficial" roading and mesquite fuelwood cutting (Gregory Beatty, AGFD, pers. comm.). Continued thinning of mesquite bosque reduces their buffering effect around cottonwood nest trees, and unofficial roads now provide access to within 100 feet of Fort McDowell nest trees (Gregory Beatty, pers. comm.). The increasing human activity and development serve to increase all the threats described above.

The proposed agricultural conversion would take place from ¼ mile to almost 1 mile away from riparian nesting habitat, whereas developments under the RBIP took place adjacent to the habitat. However, the proposed project introduces new potential for disturbance in addition to whatever level was caused by the previous development. Several recent examples of bald eagles nesting near agricultural fields are available. However, these examples come from regions lacking the extreme heat faced by southwestern bald eagles. The potential for exposure of eggs and nestlings to extreme heat, caused by flushing adults from the nest, remains a concern.

Direct and Indirect Effects of the Proposed Action

Direct effects include increased disturbance by humans, earth-moving machinery and farming equipment, associated harassment, and exposure to more environmental contaminants. Very intrusive project development (heavy equipment, land clearing, and blasting) will likely disturb normal bald eagle breeding and feeding behavior. Aerial pesticide spraying on project fields will potentially drift over the nest sites. Use of sprayed crop material in nest construction has been documented at this breeding site, especially for nest lining (Hunt, et al., 1991). Further, runoff and/or leachate containing pesticide residue may enter the Verde River and subsequently contaminate bald eagle food items. These potential contacts between bald eagles and pesticides concerns the FWS. However, we assume that the Environmental Protection Agency (EPA) pesticide registration process will preclude use of any compounds known to be harmful to bald eagles.

Indirect effects of the proposed project also include potential disturbance and harassment, plus harm through facilitating continued degradation of important riparian habitat. The environmental assessment states that no riparian vegetation will be cleared for this project. However, road improvements and road maintenance may facilitate continued and increased fuelwood cutting (chiefly mesquite) in the Verde River riparian corridor. Mesquite bosque are believed to provide buffer zones between bald eagle nest trees and human disturbance. Recent clearing of mesquite from near nest trees, along with generally increasing recreational and agricultural activities, have coincided with a 45 percent reduction in reproduction at the Fort McDowell bald eagle nest site. Proposed clearing of mesquite for agricultural conversion to within 165 feet of this bald eagle breeding site was partially responsible for a jeopardy biological opinion in 1985 (USFWS 1985). Desert scrub riparian areas lining ephemeral washes in the project area are likely to provide important movement corridors for wildlife accessing the Verde River from the McDowell Mountains bajadas. Modification or elimination of these corridors may reduce availability of terrestrial prey items for the bald eagles.

Indirect effects would generally continue habitat modification by changing vegetation communities, provide opportunities for increased human activity in the bald eagle nesting habitat, and increase access for fuelwood cutting (habitat modification), ORV operation and shooting (disturbance).

In summary, the project proposed to be funded by the Fort McDowell Federal Loan Application Project would adversely affect the Fort McDowell bald eagle breeding site. The proposed project would therefore also adversely affect the small southwestern bald eagle population because the Fort McDowell site is documented as being disproportionately important in maintaining that population. Adverse effects would likely occur as follows: decreased reproductive success due to disturbance (at the nest and while foraging); increased degradation of foraging habitat; and increased potential for abandonment of the bald eagle nest site itself. The Fort McDowell breeding site has coexisted with agricultural and human activity since monitoring data began being recorded in 1968. However, human activity levels have continually increased through this time, and nesting success has fallen by 45 percent since the last large agricultural development in the area (see above in Environmental Baseline). It is likely that the proposed development will eventually cause conditions that exceed the breeding bald eagles' tolerance for habitat modification and cause them to abandon their breeding territory.

Cumulative Effects

Cumulative effects are those effects of future non-Federal (state, local government, or private) activities on endangered or threatened species or critical habitat that are reasonably certain to occur in the foreseeable future. Future Federal actions are subject to the consultation requirements established in Section 7 and, therefore, are not considered cumulative in the proposed action.

It is reasonably certain that human activity will increase in the area, with expanded, improved, and maintained road access and increased awareness of this access. The popularity of the Verde River for recreational opportunities and fuelwood cutting makes it likely that new roads would facilitate increases in these activities. Fuelwood cutting would continue to reduce vegetation that helps to buffer the bald eagles from human activities and also provides bald eagle hunting perches. Increased recreational access would increase potential disturbance by various activities: ORV's, shooting, and fishing. Knight, et al., (1991) recently found that presence of anglers affected the number, behavior, and temporal distribution of foraging bald eagles. Increased fishing would further increase the threat of entanglement of bald eagles in fishing line, a problem documented in Arizona (Hunt, et al., 1991).

Any future modification, degradation or development of the mesquite-willow-cottonwood-salt cedar riparian habitats would contribute to negative cumulative effects on this breeding site and surrounding foraging habitat. The factors described above would all increase, as would a concern for nest site availability. With continued clearing, woodcutting, and poor cottonwood regeneration, and the lack of potential cliff nest sites, the Fort McDowell bald eagle territory could ultimately lack any nest sites. Under the 1990 Fort McDowell Indian Water Settlement Act, the FMIC will receive \$23 million. The FMIC has expressed an interest in using some of those funds for further agricultural development along this reach of the Verde River. If such actions are Federal actions, they would be addressed again in a separate Section 7 consultation. If they are not, consideration of the integrity of this bald eagle breeding site would have to be addressed under the Migratory Bird Treaty Act (16 U.S.C. 703-712), the Bald Eagle Protection Act (16 U.S.C. 668-668c), and Section 9 (Prohibited Acts) of the Endangered Species Act of 1973, as amended.

REASONABLE AND PRUDENT ALTERNATIVES

Regulations implementing Section 7 define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that (1) can be implemented in a manner consistent with the intended purpose of the action, (2) can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, (3) are economically and technologically feasible, and (4) would, the FWS believes, avoid the likelihood of jeopardizing the continued existence of listed species or of resulting in the destruction or adverse modification of critical habitat.

If the following are implemented as a reasonable and prudent alternative, the proposed project is not likely to jeopardize the continued existence of the southwestern population of bald eagles.

Include as a term of the proposed loan, the development and implementation of a long-term plan to maintain and preserve current and future (replacement) bald eagle nest trees and foraging habitat (perch trees) along the Verde River riparian corridor (Figure 1). This plan should establish nesting and foraging areas, manage these areas to provide the long-term needs of nesting bald eagles, and prevent their disturbance. This management plan shall be approved by the FWS, and shall include the following elements.

1. Nest Site Management Areas Nest site management areas shall be established for at least all three existing nest sites. At least two additional nest site management areas shall be established and managed to provide future replacement nest sites. Nest tree management area boundaries should be defined by a minimum 330-foot radius around current and potential nest trees; these "buffer zones" shall exclude woodcutting and other habitat-modifying activities. Nest tree management areas shall be signed around their perimeter and at access points, as endangered species breeding areas. In any given year, all entry shall be prohibited into the management area containing the active nest during the bald eagle breeding season (December 1 through June 15). Roads that lead into nest site management areas shall be posted as closed to trespass during the bald eagle breeding season (December 1 through June 15). At these entry points, also post signs stating that no woodcutting is allowed in the nest site management areas at any time. Where these management areas incorporate existing agricultural land, that land may be maintained as agricultural land. The active nest in any given year shall continue to be monitored through the ABENWP.

2. Foraging Habitat Management Areas Foraging habitat management shall include preservation of tracts of mesquite-willow-cottonwood-salt cedar associations along the Verde River riparian corridor. The two "future potential" nest site management areas described above may be considered foraging habitat management areas. These areas shall be managed similar to the nest site management areas. Woodcutting and unofficial roading shall be discouraged. Entry restrictions need not be as strict as those for nest site management areas. Foraging habitat management areas should include riffle-pool complexes and associated perch trees.

3. Rehabilitation Fund Include as a term of this loan the creation of a rehabilitation fund in the amount of \$100,000, to be used for habitat rehabilitation in the event of any failures of the above habitat management areas. This fund may be used for planting cottonwoods, willow, and/or mesquite in any areas inadvertently cleared within the management areas, either by project participants or unregulated woodcutting. This fund may also be used to obliterate any new roads established within the management areas defined above. This fund should be created out of Federal Loan Application Project funds, and maintained in an account to be determined by the BR and FMIC. This account shall provide for availability of rehabilitation funds at any time, throughout the life of the project. "Life of the project" shall be defined as the period from first on-site development through conclusion of all project construction and planting. Expenditures from this fund for habitat rehabilitation shall be at the mutual agreement of FMIC, BR, AGFD, and FWS.

4. Construction Buffer Zones Maintain a construction buffer zone around active bald eagle nests of 1/3 mile. This buffer zone shall exclude potentially disruptive project construction/development activities, including blasting or use of heavy earth-moving equipment during the bald eagle breeding season (December 1 through June 15).
5. Nestwatch Program Monitoring Continue to permit monitoring of the Fort McDowell bald eagle breeding site through the ABENWP, to facilitate early detection and prevention of harassment or harm. Any ABENWP reports of failures of the above habitat management areas shall be jointly discussed by the FMIC, BR, AGFD, and FWS.
6. If any of these measures are not succeeding in preventing adverse impacts on the Fort McDowell nesting bald eagles, or if agricultural activities are disturbing normal behavior of the bald eagles (as determined by the FWS), all actions will stop and consultation will be reinitiated.

INCIDENTAL TAKE

Section 9 of the Act, as amended, prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish and wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered a prohibited taking provided that such taking is in compliance with the incidental take statement.

The FWS anticipates that, if the reasonable and prudent alternative is implemented, the proposed Fort McDowell Federal Loan Application Project/trickle-irrigation project will not result in the incidental take of bald eagles.

If, during the course of the action, the amount or extent of the incidental take limit is exceeded, the BR must reinitiate consultation with the FWS immediately to avoid violation of Section 9. Operations must be stopped in the interim period between the initiation and completion of the new consultation, if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species. The BR should provide an explanation of the causes of the taking.

The incidental take statement provided in this opinion satisfies the requirements of the Act, as amended. This statement does not constitute an authorization for take of listed migratory birds under the Migratory Bird Treaty Act (16 U.S.C. 703-712), the Bald Eagle Protection Act (16 U.S.C. 668-668c) or any other Federal statute.

Reporting Requirements

Upon locating a dead, injured, or sick endangered or threatened species specimen, initial notification must be made to the Phoenix FWS Law Enforcement Office in Mesa, Arizona. Care should be taken in handling sick or injured specimens to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term conservation recommendations has been defined as FWS suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's Section 7(a)(1) responsibility for these species.

The FWS recommends that water quality, flow rates, and fishery resources of the Verde River should be monitored upstream and downstream from the project, and the FWS be contacted, if necessary, to assist in maintaining adequate foraging conditions for the bald eagle.

The FWS recommends planting cottonwood and willow poles in the Verde River riparian corridor, to facilitate maintenance and regeneration of riparian vegetation for buffering effects at nest sites and to provide future nest trees.

A habitat conservation plan for bald eagle habitat in the Verde River riparian ecosystem should be developed and implemented to provide for the continued integrity of the Fort McDowell bald eagle breeding site.

In order for the FWS to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

Because this biological opinion has found jeopardy to the continued existence of the southwestern population of bald eagles, the BR is required to notify the FWS of its final decision on the implementation of the reasonable and prudent alternative.

CONCLUSION

This concludes formal consultation on the actions outlined in the BR's Environmental Assessment and Biological Assessment on the Federal Loan Application Project, Fort McDowell Indian Reservation. As required by 50 CFR 402.16, reinitiation of formal consultation is required if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

In future communications on this project, please refer to consultation number 2-21-91-F-248. If we can be of further assistance, contact the Ecological Services Field Office in Phoenix, Arizona, at (602) 379-4720 or FTS 261-4720.

Sincerely,


Acting Regional Director

cc:

Director, FWS, Washington, D.C. (AFWE/ES)

Director, Arizona Game and Fish Department, Phoenix, Arizona

Chairperson, Southwestern Bald Eagle Management Committee, Phoenix, Arizona

Bureau of Indian Affairs, Phoenix Area Office, Environmental Division, Phoenix, Arizona

Field Supervisor, FWS, Ecological Services, Phoenix, Arizona

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PERSONAL COMMUNICATIONS

Beatty, Gregory. Arizona Bald Eagle Nestwatch Coordinator, Arizona Game and Fish Department, Phoenix, Arizona.

Driscoll, Daniel. Research Biologist, BioSystems Analysis, Inc., Santa Cruz, California.

Williams, Sartor O. III. Endangered Species Biologist, New Mexico Department of Game and Fish, Santa Fe, New Mexico.